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interested in archæology can be found as in Japan." Indeed there is a native archæological society in existence which holds regular meetings.

The Omori mounds lie six miles from Tokio, about half a mile from the shores of the Bay of Yeddo, and as shell mounds are naturally cast up near the shore, this indicates that the land has been elevated since their formation. These mounds differ from those of Denmark and New England by the great amount of pottery contained in them, by the great scarcity of stone implements, and by the absence of arrow-heads, spear-points and other pointed implements of stone, not a single arrow-head, flake or chip having been found after prolonged search, though rude stone hammers, celts and rollers, and instruments of bone occurred; but any ornaments for personal adornment, such as are worn by the Ainos, were entirely absent. While the remains of the monkey, deer, wild boar, wolf and dog occurred, the human bones were found to have been broken, "either with the object of extracting the marrow or for convenience of cooking in vessels of too small dimensions to admit them at length," while the bones were, in some cases, "strongly marked with scratches and cuts." These evidences of cannibalism are paralleled by those of the aborigines of Florida. Flattened tibiæ also occurred. The author also compares the shells found in the mounds, and discovered that much as on the coast of New England and Florida, they are now less abundant and smaller. While changes in the relative proportions of the shells of certain molluscs have taken place, the modifications in the relative size and proportions of certain species being considerable, and seeming to indicate "either that species vary in a much shorter time than had been supposed, or else that deposits presenting these peculiarities have a much higher antiquity than had before been accorded them." The differences seemed to be decided, though still within specific limits, and to have been produced at a minimum of 1500 to 2000 years, Japanese history extending back thus far.

The plates, printing and manufacture of the book is of Japanese origin, a Japanese as well as an English edition having been printed.

GROWTH AS A FUNCTION OF CELLS.¹—Under this title Mr. Minot discusses the subject of the increase of bulk, weight, etc., which attends the development of an individual organism from the one-celled egg-stage to maturity and death. The exponential formulæ presented, expressing the rate and consequences of growth, are just about as unsatisfactory as they well can be, and, while we would not for a moment doubt the accuracy of Mr. Minot's facts, the attempt to express the laws of growth, which

¹ *Growth as a Function of Cells.* By CH. SEDGWICK MINOT. Proceedings Boston Soc. Nat. Hist., 1878-79. Vol. xx, Pt. II, p. 190.

are themselves determined by the incidence of variably potent forces which again interact variably, producing variable resultants, the propriety of expressing biological equations by x , y , generations by n , and their variables by $\pm n$, powers of these or any other desirable arbitrary symbols, becomes apparent. The results to science of this method of treating the subject, while perfectly proper and right if a person chooses so to state them, may be fairly questioned.

There seems just now to be a mania amongst biologists for re-naming things when they remodel old definitions. Although Huxley may define the *individual* as the result of the development of a single egg, and Haeckel define and call it a *person*, a *virtual* or an *actual bion*; our author now under notice, thinking that, because it has recently been discovered that the ovicell, by impregnation, becomes blended with the spermatozoön, justifies him in coining a new term derived from that much-tortured Greek word from which so much *biology* has been extracted, for re-christening the individual under the name of *biad*. The nominal rubbish of scientific literature is acquiring huge proportions; for we already have for the cell, *plastid*, *protoplast*, *bioplast*, *amœboid*; and for special forms of it, terms too many to catalogue here. On this ground the proposition to re-name an old thing is ill-advised, and it may be doubted whether *zygote*, the name proposed for the result of the fusion of the male and female cell elements in certain plants, by Strasburger, may not properly supercede *biad*, while the word *gamete*, proposed by the same author, will answer all practical purposes in designating the reproductive elements of separate sexes. When one is worried with getting at the import of some recently coined term, so often needlessly imposed by some of the evolutionary school of scientific thinkers, Haeckel and his followers especially, it is refreshing to turn to the pages of Darwin or Spencer, often to find the same questions treated in much better and plainer every-day English.—*J. A. R.*

WILLIAMSON'S FERN ETCHINGS.¹—The dual character of this fine work makes it no less valuable to the amateur fern student and advanced pteridologist than to those who admire ferns for their beauty alone, as by adopting the geographical range of "Gray's Manual," and accompanying his plates with descriptive text, the author, while professing only to present a series of life-like fern etchings, has really given to us a complete hand-book of all the species found growing in the Northern, Middle and Eastern States, and, in the present edition, the Dominion of Canada.

The clear, concise descriptions and faithful representations of the ferns themselves, will make this book an invaluable and indis-

¹*Fern Etchings*. By JOHN WILLIAMSON, author of the "Ferns of Kentucky." Published by John P. Morton & Co., Louisville, Ky, 1879. 2d edition, 70 illustrations. Price \$7.50.